Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TERRY L. SCULLEY

Appeal No. 2003-2156
Application No. 09/849,761

ON BRIEF

Before THOMAS, BARRETT, and DIXON, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's final rejection of claims 1 through 25.

Representative claim 14 is reproduced below:

14. A method for reducing noise in an output signal of an analog-to-digital converter (ADC), the method comprising:

dividing the output signal into frequency subbands;

> processing a frequency subband signal in each of the subbands by passing the frequency subband signal in each of the subbands to a corresponding input of a summing node if the frequency subband signal is outside of a threshold range and passing an attenuated value signal to the summing node if the signal is within the threshold range; and
>
> generating a final output signal by summing the processed frequency subband signals at the summing node.

The following reference is relied upon by the examiner:

Kolesnik et al. (Kolesnik) 6,263,312 Jul. 17, 2001
(filing date Mar. 02, 1998)

Claims 1 through 25 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon appellant's admitted prior art in view of Kolesnik.

Rather than repeat the positions of the appellant and the Examiner, reference is made to the Brief and Reply Brief for appellant's positions, and to the Answer for the Examiner's positions.

OPINION

We sustain the rejection of claims 1 through 25 rejected under 35 U.S.C. § 103.

At the outset, we note that the top of page 4 of the principal Brief on appeal indicates that each of the claims on appeal stand or fall "together". None of the claims on appeal are argued separately. Moreover, no claim feature

has been argued but only aspects of the disclosed invention repeated in the Brief and Reply Brief. Thus, we choose as a representative claim for our consideration, independent claim 14 on appeal, as reproduced earlier in this opinion.

Although we agree with appellant's characterizations in the Brief and Reply Brief that the examiner has not set forth a sufficient rationale in the answer as to the combinability/motivation of appellant's admitted prior art with Kolesnik, we still sustain the rejection of the claims on appeal. Initially, the examiner's statement of the rejection at page 3 of the Answer implicitly includes independent claims 1, 8, 14 and 22. The examiner has not separately parsed these independent claims, but has considered each of the remaining dependent claims on appeal at pages 3 and 4. The examiner has not presented to us a detailed study of what the teachings of the admitted prior art and Kolesnik are. The examiner's rationale is either unexplained or weakly explained. We will therefore not speculate as to the combinability of the respective references relied upon by the examiner.

On the other hand, we sustain the rejection of representative independent claim 14 on appeal because our consideration shows that the admitted prior art alone is sufficient to have rendered the subject matter of this representative claim on appeal obvious within 35 U.S.C. § 103.

We make reference to the prior art discussion at specification page 1, line 7 through page 5, line 7. Of the prior art discussion of the material at these pages, we make initial reference to the discussion that analog radio receiver technology provided a prior art squelch operation equivalent in the art to the claimed muting/unmuting functions. According to the discussion at the bottom of specification page 2, this squelching or muting operation would turn off or mute the analog output signal if it was below a given threshold level, the effect of which reduced unnecessary noise. On the other hand, when an analog output signal was above the given threshold, the output was again turned on or unmuted. Functionally, this is equivalent to the claimed muting and unmuting functions of the claims on

appeal, irrespective of whether the unmuting and muting functions are recited per se. This analog receiver muting function was apparently only applicable to one band of frequencies, and there was no signal summing operation.

The teachings of this just-discussed prior art was applied to digital-to-analog converters according to the discussion at pages 3 and 4 of the specification as filed in a second example of what prior art squelching techniques were utilized to function in a muting and unmuting situation. This discussion makes reference to prior art Figures 1 and 2. When the digital input signals to these DACs were all zeros for a given time, the prior art mute/unmute control muted the output signal. On the other hand, any time the input signal was not zero, the output signal was immediately unmuted. Again, these functions relate to the corresponding functions of the claims on appeal, yet still apparently applied to only one band of frequencies and no signal summing operation. The top of page 4 indicated that this approach was used in prior art CD players.

The discussion at specification pages 4 and 5, and a third example, recognizes that prior art squelching operations applied to ADC converted audio signals for data compression in MPEG (Moving Pictures Expert Group). In a manner directly applicable to the claimed invention utilizing plural bands of digital audio information, a given digital audio signal is divided into multiple subbands by a digital filter bank which has a threshold masking function settable for each of the priority of frequency subbands. It appears that this settability of the threshold level corresponds to the ability to selectively mute and unmute or selectively choose the allowable noise level for each respective band. As explained at the top of page 5 of the specification as filed, in any given band where the noise level was outside (claim 14) of a given threshold masking level, the signal was preserved and unmuted or not attenuated in any manner. Correspondingly, in those bands of frequency which were not outside of the threshold mask level, that is, that were within (claim 14) the respective threshold mask level value, the signal was attenuated. This attenuation took the form of fewer bits of the comparable

data signal were allowed to be propagated at the output in direct opposite comparison to the nonattenuated or preserved signal values where many bits of information were utilized to characterize the output signal. Lastly, it is stated at page 5, lines 5 through 7 that an "[a]pproximate replica of the original signal may be reconstructed from the compressed data by combining the subband signals into a single output." This combination function is equivalent to the summing operation of representative claim 14 on appeal.

As noted at the top of page 3 of the Brief, the claims on appeal have not been amended and are originally filed claims, which clearly read on appellant's own admitted prior art. In other words, the claims were filed and prosecuted by the appellant where the claims did not distinguish over the prior known to the appellant.

In view of the foregoing, the decision of the examiner rejecting all claims on appeal under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

JAMES D. THOMAS Administrative Patent Judge	)	
LEE E. BARRETT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	)	

JDT/ls/vsh

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